UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,254	02/26/2002	Scott R. Gremmert	H0002864	1711

128　　7590　　12/23/2004	EXAMINER
HONEYWELL INTERNATIONAL INC. 101 COLUMBIA ROAD P O BOX 2245 MORRISTOWN, NJ 07962-2245	DO, CHAT C

ART UNIT	PAPER NUMBER
2124	

DATE MAILED: 12/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/085,254	GREMMERT, SCOTT R.
	Examiner	Art Unit	
	Chat C. Do	2124	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>26 February 2002 and 15 September 2003</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-48</u> is/are pending in the application.
  4a) Of the above claim(s) <u>37-48</u> is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1-8, 10-32, 34-36</u> is/are rejected.
7)☒ Claim(s) <u>9 and 33</u> is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>26 February 2002</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☐ All   b)☐ Some *   c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date <u>09/15/03</u>.
4) ☒ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. <u>12/07/04</u>.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-36 are examining.

2.   Claims 37-48 are withdrawn.

Election/Restrictions

3.   Restriction to one of the following inventions is required under 35 U.S.C. 121:

I.   Claims 1-36, drawn to filtering data with median filter, classified in class 708,

subclass 202.

II.   Claims 37-48, drawn to filtering data with circular memory structure, classified in

class 708, subclass 300.

The inventions are distinct, each from the other because of the following reasons:

4.   Inventions of Group I and Group II are unrelated. Inventions are unrelated if it can be

shown that they are not disclosed as capable of use together and they have different modes of

operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the

instant case the different inventions wherein Group I of claims 1-36 relates to a data filter

utilizing a median filter and Group II of claims 37-48 relates to a data filter using circular

memory/buffer structure.

5.   Because these inventions are distinct for the reasons given above and have acquired a

separate status in the art as shown by their different classification, restriction for examination

purposes as indicated is proper.

6.   Because these inventions are distinct for the reasons given above and the search required

for Group I is not required for Group II, restriction for examination purposes as indicated is

proper.

7.   Because these inventions are distinct for the reasons given above and have acquired a

separate status in the art because of their recognized divergent subject matter, restriction for

examination purposes as indicated is proper.

8.   During a telephone conversation with Charles Rupnick on December 07 2004 a

provisional election was made without traverse to prosecute the invention of Group I, claims 1-

36. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 37-48 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being

drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

9.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on
sale in this country, more than one year prior to the date of application for patent in the United States.

10.   1-3, 6, 10-25, 28, and 34-36 are rejected under 35 U.S.C. 102(b) as being anticipated by

Bae et al. (U.S. 5,968,111).

Re claim 1, Bae et al. disclose in Figures 2B and 3 a method for filtering data

(abstract with median technique) the method comprising: receiving a plurality of data

samples (e.g. R[0]-R[8] in Figure 2B); computing a locus of the samples (col. 3 lines 2-

10); normalizing (col. 3 lines 21-33) a value of an input sample to a range centered on the locus; passing the data through a distance-based filter (31); and normalizing (col. 4 lines 12-17) an output value of the distance-based filter to a predetermined output range.

Re claim 2, Bae et al. further disclose in Figures 2B and 3 the distance-based filter further comprises a median (abstract lines 1-2).

Re claim 3, Bae et al. further disclose in Figures 2B and 3 the distance-based filter further comprises a low-pass (Figure 2B relates to a filter within a unit circle in phase and a magnatude; col. 4 lines 25-29).

Re claim 6, Bae et al. further disclose in Figures 2B and 3 computing a locus of the samples comprises computing one of an arithmetic mean (e.g. equation 1 in col. 3), a geometric mean, a harmonic mean, and a quadratic mean of the samples.

Re claim 10, Bae et al. further disclose in Figures 2B and 3 computing a locus of the samples comprises selecting a previous filter output value (e.g. Table 4).

Re claim 11, Bae et al. disclose in Figures 2B and 3 a method for filtering data (abstract), the method comprising: determining (col. 3 lines 2-9) a current locus of a plurality of data samples as a function of signal history; determining (col. 3 lines 22-32) a current normalizing range as a function of the current locus; normalizing (col. 3 lines 22-32) an input value to the current normalizing range; passing (31 in Figure 3) the input value and the current locus through a distance-based filter; and normalize (col. 4 lines 12-17) an output value of the distance-based filter to the current normalizing range.

Re claim 12, it has same limitations cited in claims 2, 3, or 4. Thus, claim 12 is

also rejected under the same rationale as cited in the rejection of rejected claims 2, 3, or

4.

Re claim 13, it has same limitations cited in claim 6. Thus, claim 13 is also

rejected under the same rationale as cited in the rejection of rejected claim 6.

Re claim 14, it is a device claim of claim 1. Thus, claim 14 is also rejected under

the same rationale as cited in the rejection of rejected claim 1.

Re claim 15, Bae et al. further disclose in Figures 2B and 3 a means for

comparing the distance between the input value and the locus with a predetermined

threshold value (equation 2 with Max and Min).

Re claim 16, Bae et al. further disclose in Figures 2B and 3 a means for

normalizing the distance between the input value and the locus when the distance exceeds

a predetermined limit (equation 2 with Max and Min).

Re claim 17, Bae et al. further disclose in Figures 2B and 3 normalizing the

distance between the input value and the locus includes adjusting the sample to be within

one-half circle of the locus (equation 2 with Max and Min and lines 28 in col. 3).

Re claim 18, Bae et al. further disclose in Figures 2B and 3 a means for

comparing the output value with a predetermined threshold value (equation 2 with Max

and Min).

Re claim 19, Bae et al. further disclose in Figures 2B and 3 a means for

normalizing the output value when the output value exceeds a predetermined limit

(applying equation 2 with Max and Min).

Re claim 20, Bae et al. further disclose in Figures 2B and 3 normalizing the output value includes adjusting the output value to be within a predetermined output range (equation 2 within a unit circle).

Re claim 21, it is a system claim of claim 11. Thus, claim 21 is also rejected under the same rationale as cited in the rejection of rejected claim 11.

Re claim 22, Bae et al. further disclose in Figures 2B and 3 the function of determining an output value includes applying a distance-based tilter to the plurality of data samples (Figure 3).

Re claim 23, it has same limitations cited in claim 16. Thus, claim 23 is also rejected under the same rationale as cited in the rejection of rejected claim 16.

Re clam 24, it has same limitations cited in claim 19. Thus, claim 24 is also rejected under the same rationale as cited in the rejection of rejected claim 19.

Re claim 25, Bae et al. further disclose in Figures 2B and 3 the function of processing at least a portion of the plurality of data samples to compute a locus of the samples includes computing an approximation of the locus of the samples (equation 2 and col. 3 lines 27-32).

Re claim 28, it is a computer program product claim of claim 1. Thus, claim 28 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

Re claim 34, it is a computer program product claim of claim 10. Thus, claim 34 is also rejected under the same rationale as cited in the rejection of rejected claim 10.

Re claim 35, it is a computer program product claim of claim 2. Thus, claim 35 is also rejected under the same rationale as cited in the rejection of rejected claim 2.

Re claim 36, it is a computer program product claim of claim 6. Thus, claim 36 is

also rejected under the same rationale as cited in the rejection of rejected claim 6.

Claim Rejections - 35 USC § 103

11.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

12.   Claims 4-5, 7-8, 26-27, 29-32 are rejected under 35 U.S.C. 103(a) as being obvious over

Bae et al. (U.S. 5,968,111) in view of Connell et al. (U.S. 6,018,750).

Re claim 4, Bae et al. do not disclose in Figures 2B and 3 the distance-based filter

further comprises one of a band-pass filter and a high-pass filter. However, Connell et al.

disclose the distance-based filter further comprises one of a band-pass filter and a high-

pass filter (col. 1 lines 50-54). Therefore, it would have been obvious to a person having

ordinary skill in the art at the time the invention is made to add one of a band-pass filter

and a high-pass filter as seen in Connell et al.'s invention into Bae et al.'s invention

because it would enable to reduce the roughness of input signal or allow larger input

tolerate signal.

Re claims 5 and 7-8, Bae et al. do not disclose in Figures 2B and 3 computing a

locus of the samples comprises computing an average of a last two or three of the

samples with the input sample. However, Connell et al. disclose in Figure 2 that the next

median data is computed based on the incoming sample and the outgoing data sample

(Figure 2 part 205) and also the median is computed by averaging the samples (Table 1 in col. 2). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add a computation of a locus of the samples comprises computing an average of a last two or three of the samples with the input sample as seen in Connell et al.'s invention into Bae et al.'s invention because it would enable to reduce the roughness of input signal or allow larger input tolerate signal without producing meaningless result by statistically computing over many samples.

Re claim 26, it has same limitation cited in claim 5. Thus, claim 26 is also rejected under the same rationale as cited in the rejection of rejected claim 5.

Re claim 27, it has same limitation cited in claim 5. Thus, claim 27 is also rejected under the same rationale as cited in the rejection of rejected claim 5.

Re claim 29, it is a computer program product claim of claim 5. Thus, claim 29 is also rejected under the same rationale as cited in the rejection of rejected claim 5.

Re claim 30, it is a computer program product claim of claim 5. Thus, claim 30 is also rejected under the same rationale as cited in the rejection of rejected claim 5.

Re claim 31, it is a computer program product claim of claim 7. Thus, claim 31 is also rejected under the same rationale as cited in the rejection of rejected claim 7.

Re claim 32, it is a computer program product claim of claim 8. Thus, claim 32 is also rejected under the same rationale as cited in the rejection of rejected claim 8.

Allowable Subject Matter

13.   Claims 9 and 33 are objected to as being dependent upon a rejected base claim, but would

be allowable if rewritten in independent form including all of the limitations of the base claim

and any intervening claims.

Conclusion

14.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

   a.   U.S. Patent No. 5,900,006 to Yoon discloses a median filtering method and

   apparatus using a plurality of processing elements.

   b.   U.S. Patent No. 5,138,567 to Mehrgardt discloses a median filter.

   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The

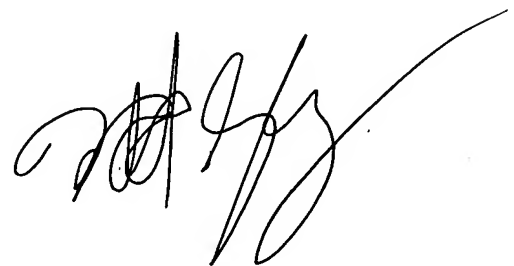examiner can normally be reached on M => F from 7:00 AM to 5:30 PM.

   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chaki Kakali can be reached on (571) 272-3719. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C. Do
Examiner
Art Unit 2124

December 9, 2004

TODD INGBERG
PRIMARY EXAMINER